Fall 9-1-2005

WEL 189T.01: Metal Fabrication I

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THE UNIVERSITY OF MONTANAвMISSOULA
COLLEGE OF TECHNOLOGY
INDUSTRIAL TECHNOLOGY DEPARTMENT

COURSE SYLLABUS

COURSE NUMBER AND TITLE: Wel 189T, Metal Fabrication I

DATE REVISED: Fall, 1999

SEMESTER CREDITS: 4

PREREQUISITES: MPR 114T (Related Metal Processes), WEL 192T (Blueprint Reading and Development), WEL 194T(Layout Techniques), WEL 185T(Flux Core Arc Welding), WEL 181T(Shielded Metal Arc Welding)

INSTRUCTOR
NAME: Bill Gleason
PHONE NUMBER: 243-7847
OFFICE LOCATION: West Campus, Welding Lab Office
OFFICE HOURS: 10:00 to 11:00 Monday thru Friday and by appointment

RELATIONSHIP TO PROGRAM(S):
Provides metallurgical theory, examples and hands-on experience. This experience is to provide a solid understanding of metals as a background for learning welding processes.

COURSE DESCRIPTION: A comprehensive metal fabrication course designed with the intent that students take experiences gained in the above prerequisite courses and apply them here in the fabrication of metal structures

STUDENT PERFORMANCE OUTCOMES:
Occupational Performance Objectives
Upon completion of this course, the student will be able to:

Demonstrate by written and practical exam the safe operation of industrial machines found in metal fabrication, such as shears, presses, punches and other machine tools

Demonstrate by written and practical exam the ability to construct and understand drawings, blueprints and specifications.

Demonstrate by written and practical exam additional skill in Shielded Metal Arc Welding, Flux Core Arc Welding, Oxy Acetylene Cutting, Plasma Arc Cutting, and Air Carbon Arc Cutting.

Demonstrate the ability to plan, design and construct a project.

STUDENT PERFORMANCE ASSESSMENT METHODS AND GRADING PROCEDURES:

Project work	50%
Written exams/assignments	30% (lowest test score omitted)
Quizzes	10%
Notebook	5%
Professionalism	5%

A	94-100

B	82-93
C	70-81
D	60-69
F	59 and below

Written Tests: These tests are derived from reading assignments given in class, homework, notes from class video presentations, etc...

Quizzes: these are short tests given on daily reading assignments.

Notebook: This is a compilation of class notes and handouts. It must be complete, well organized and in a three ring binder for full credit.

Professionalism: defined as a combination of attitude, motivation, participation organization and cleanliness.

ATTENDANCE POLICY:

Attendance is not taken although you are required to be in attendance to successfully complete the course.

OTHER POLICIES:

Safety is required to be practiced at all times, Eye protection is mandatory at all times in the lab area. Disregarding safety practices, endangering yourself or others may result in your being denied access to the lab areas.

REQUIRED TEXT: Procedure Handbook of Arc Welding, 13th Edition, The James F. Lincoln Arc Welding Foundation;
Welding, Cutting and Heating Guide, Victor Equipment Co. 1977.

SUGGESTED REFERENCE MATERIALS:

The Welding Journal, published monthly by the American Welding Society

SUPPLIES:

Welding Helmet with #10 or #11 lens
Welding Gloves
Eye Protection
Pliers with wire cutting capabilities
Wire hand brush
Coveralls or equivalent
Lock for locker
Material for required project

COURSE OUTLINE:

1. Operation of metal fabrication tools
   - 1.1 Machine tools -- press brake, plate shear, forming rolls, optical tracer torch
   - 1.2 Hand tools -- clamping tools, pushing tools, hold downs, layout tools, nibblers, etc.
2. Material cutting techniques
   - 2.1 Shearing
   - 2.2 Thermal cutting for accuracy (OAC, PAC)
3. Clamping and assembly techniques
   - 3.1 Clamps, wedges/dogs, hydraulic tools, bar tacks, etc
   - 3.2 Jigs and fixtures
4. Repetitive parts
5. Problem solving through student projects